

# Lab Assignment & Solution



Cybersecurity Professional Program  
Introduction to Python  
for Security

## Network Communication

**PY-06-LS2**

**Client Socket**

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Note: Solutions for the instructor are shown inside the green box.

## Project Objective

Implement code from the socket library to create a client and connect it to the server.

## Lab Mission

Create a socket for a client in order to connect to the server.

## Lab Duration

10-15 minutes

## Requirements

- Basic knowledge of Python.

## Resources

- Environment & Tools
  - Windows, macOS, Linux
    - PyCharm
    - Python 3
    - Netcat
  - Kali Linux



## Textbook References

- Chapter 6: Network Communication
  - Section 2: Creating a Client Socket

## Lab Task 1: Client Socket

In this task, you will create a socket for the client's connection to a Netcat listener.

- 1 Start the Kali Linux machine in Live mode.



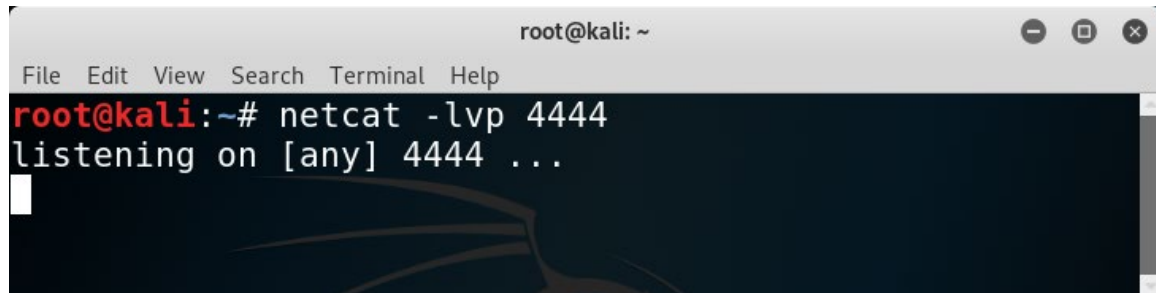
- 2 Open the terminal by clicking its icon in the options bar on the left side of the window.



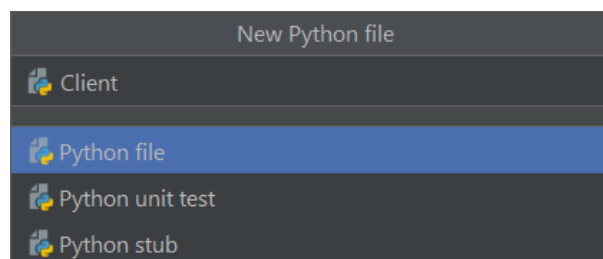
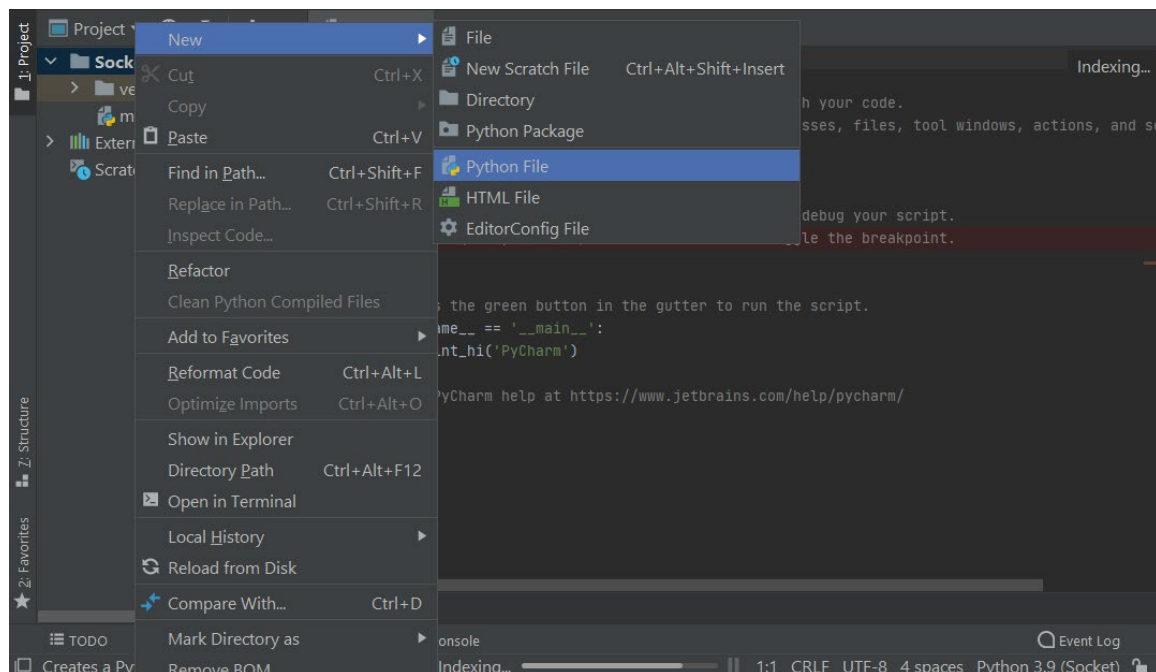
- 3 Run the command **ip a** to identify the IP address of the machine for future use.

```
root@kali: ~  
File Edit View Search Terminal Help  
root@kali:~# ip a  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    inet 127.0.0.1/8 scope host lo  
        valid_lft forever preferred_lft forever  
    inet6 ::1/128 scope host  
        valid_lft forever preferred_lft forever  
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default  
    qlen 1000  
    link/ether 08:00:27:9a:41:f9 brd ff:ff:ff:ff:ff:ff  
    inet 10.0.0.5/24 brd 10.0.0.255 scope global noprefixroute eth0  
        valid_lft forever preferred_lft forever  
    inet6 fe80::fd25:88f0:be2:8aae/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
root@kali:~#
```

- 4** Use the command **netcat -lvp 4444** to start a listener.



- 5 Create a new Python file by right-clicking the project's folder, and selecting **New → Python File**. Name the file **Client**.



- 6** Import the **socket** module to the file.

```
import socket
```

**7** Import the **time** module to the file.

```
import socket
import time
```

**8** Create a socket variable.

```
import socket
import time

my_sock = socket.socket()
```

**9** Connect the socket to the listener in the Kali machine.

```
import socket
import time

my_sock = socket.socket()

my_sock.connect(("10.0.2.4", 4444))
```

**10** Add a pause of 5 seconds after the connection using the time module.

```
import socket
import time

my_sock = socket.socket()

my_sock.connect(("10.0.2.4", 4444))

time.sleep(5)
```

**11** Close the connection at the end of the client's script.

```
import socket
import time

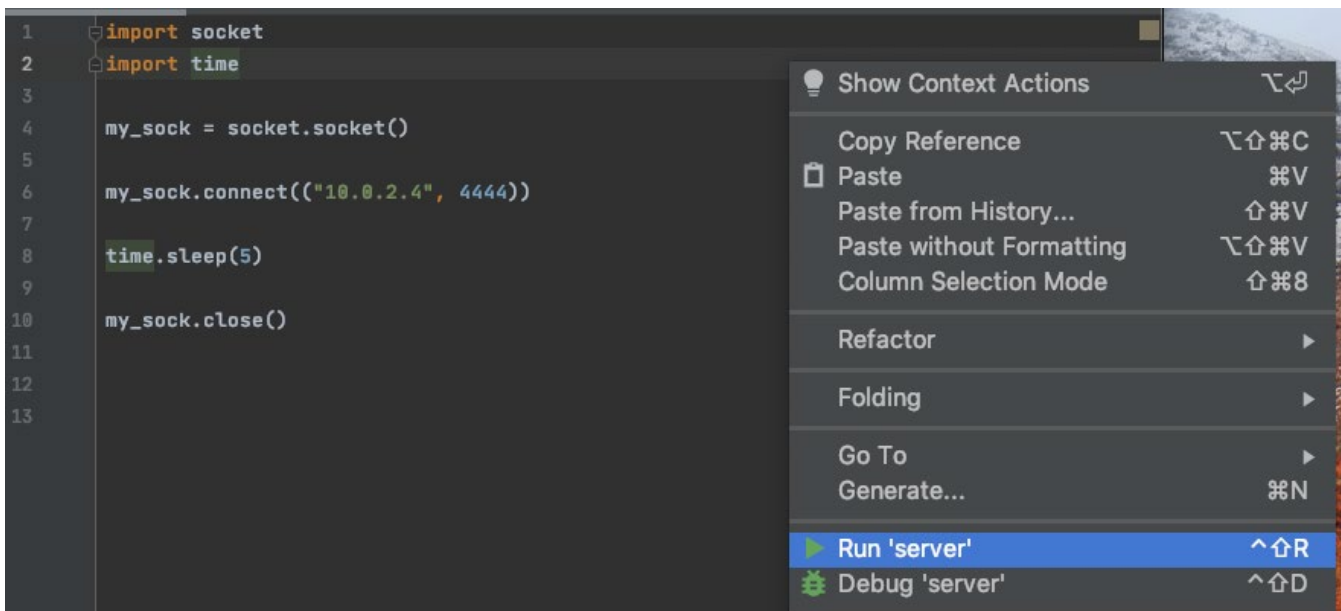
my_sock = socket.socket()
```

```
my_sock.connect(("10.0.2.4", 4444))

time.sleep(5)

my_sock.close()
```

**12** Execute the code by right-clicking the file, and then clicking **Run**.



**13** Verify in the Kali machine that the connection was established.

